

**Maintenance Recovery Terminals (MRT)  
(Global Reach-back Capability)**

**Training Guide**



**10 February 2003  
v2.05**

**Maintenance Recovery Terminals (MRT)  
(Global Reach-back Capability)**

**Contact Numbers**

**Satellite Dial-in Problems:**

Using Iridium Phone: 00-699-1-800-563-2255

**G081/Critix Dial-in Problems:**

Functional Assistance Office:

Using Iridium Phone: 00-696-312-339-5600

**InmarSAT Equipment Problems:**

HQ AMC/LGXI:

Using Iridium Phone: 00-696-312-779-2823

Mr. Mark J Carrow      DSN: 779-2823  
                                     COMM: 001-618-229-2823

**InmarSAT Customer Service:**

Using the InmarSAT Phone: 55# (Phone will automatically dial)

**Iridium Customer Service:**

DSN: 312-896-1110. Ask operator to connect you to local number 726-1215.  
COMM: (480) 726-1215

**Web-mail problems:**

Charleston AFB	DSN: 673-5882	Comm:	001-843-963-5882
Dover AFB	DSN: 445-2192	Comm:	001-302-677-2192
McChord AFB	DSN: 382-6787	Comm:	001-253-982-6787
McGuire AFB	DSN: 650-6530	Comm:	001-609-754-6530
Pope AFB	DSN: 424-6440	Comm:	001-910-424-6440
Travis AFB	DSN: 837-2091	Comm:	001-707-424-2091
Ramstein AB	DSN: 480-5000	Comm:	+49-6371-475000

## Section 1: Introduction:

1. The Maintenance Recovery Team Satellite Communications Terminal (MRT) will allow Maintenance Recovery Teams to deploy to austere locations and recover downed aircraft without the need for USAF communications support. With the MRT terminal, the team will be able to communicate with anyone in the world via the satellite communications terminal.

The system is capable of voice and high-speed data transmissions. This allows the team to talk to experts back at their home base or receive relevant tech data and allow access to AMC's CAMS for Mobility (G081) maintenance information management system via an attached laptop.

1.1 The MRT consists of 3 major components, the Laptop Computer, Satellite Communications Terminal (satellite phone) and the Satellite Antenna and associated cables (Fig. 1.1).

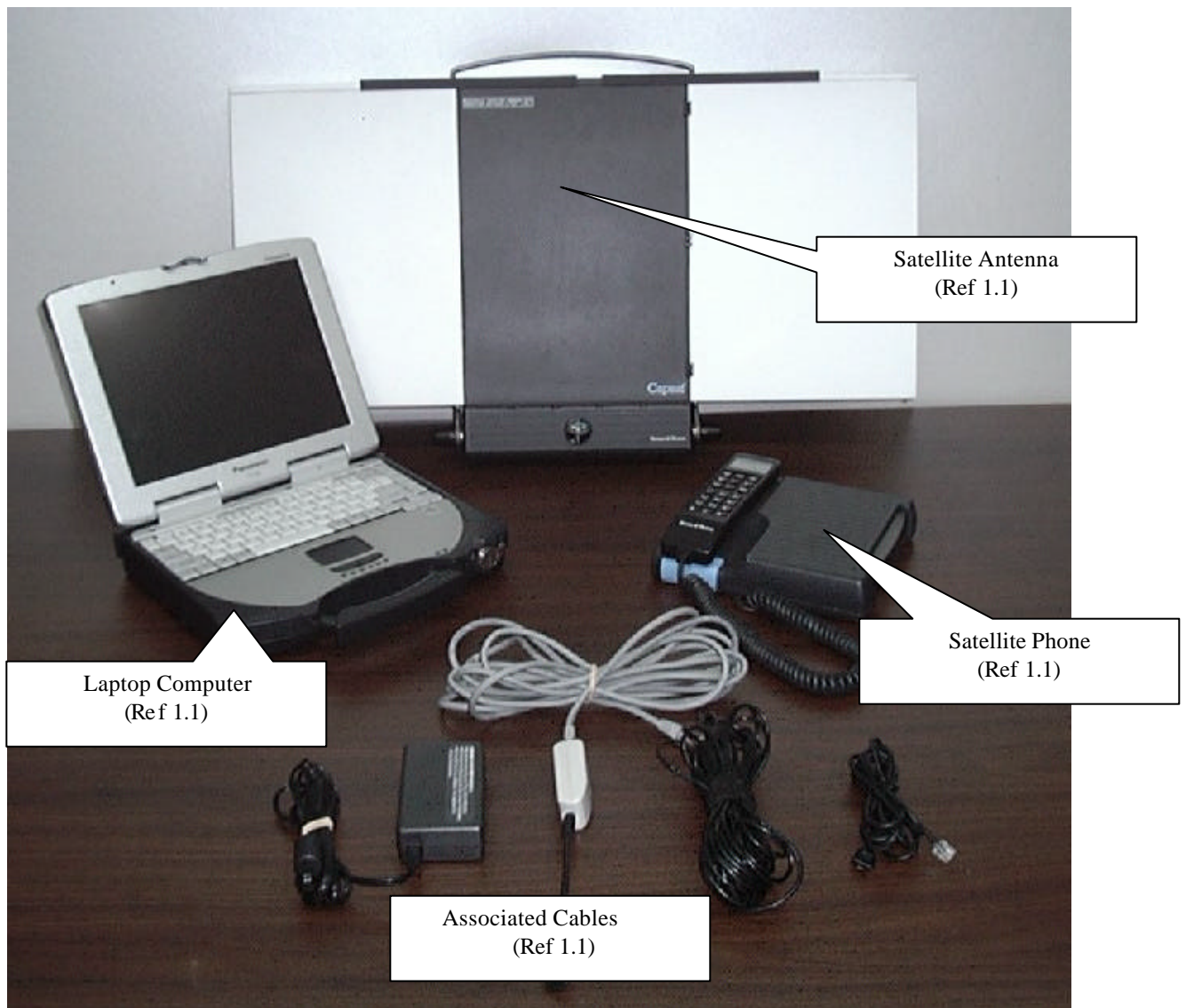


Fig 1.1

1.2 Included in the MRT Kit are several options available for connecting power to the MRT units (Fig 1.2). We'll cover each unit individually:

Laptop Computer Power Supply: 110 to 240 VAC, 50/60Hz\*. Duration: Unlimited.

Battery: 11.1 VDC. Duration: Approx 3.5 - 5 hrs. Charging Time: 3.0 - 5.5 hrs

**Note: Extensive DVD usage for other than “official” DVD’s (TO’s) will significantly reduce battery life!**

\* With appropriate power adapters (provided in kit)

Satellite Phone Power Supply: 110 to 240 VAC, 50/60Hz\*. Duration: Unlimited.

Battery: 9.5VDC. Duration: Approx 45 mins. Charging Time: 1.5 – 2.0 hrs

External/Vehicle Battery: 9.5 - 20VDC. Duration: Unlimited

\* With appropriate power adapters (provided in kit)

Satellite Antenna: Powered thru the Satellite Phone.

**Note: Power-down the Satellite Phone to extend battery life when not in use!**

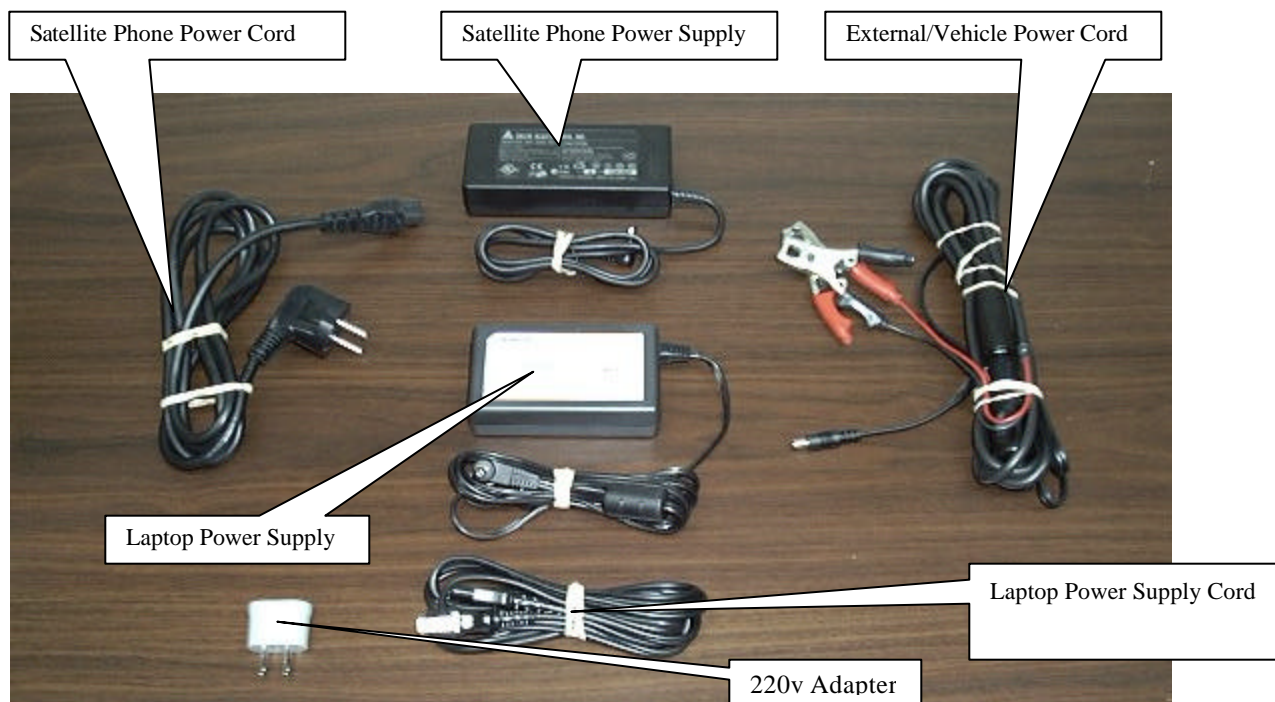


Fig 1.2



## Section 2: High Speed Data communications

2. Using the MRT Kit for High Speed data communication connectivity for G081 requires the assembly of all 3 major components of the kit and associated cables. Follow this instruction in step-by-step sequence.



Fig 2.1

2.1. Setup antenna by unfolding as shown in Fig 2.1.

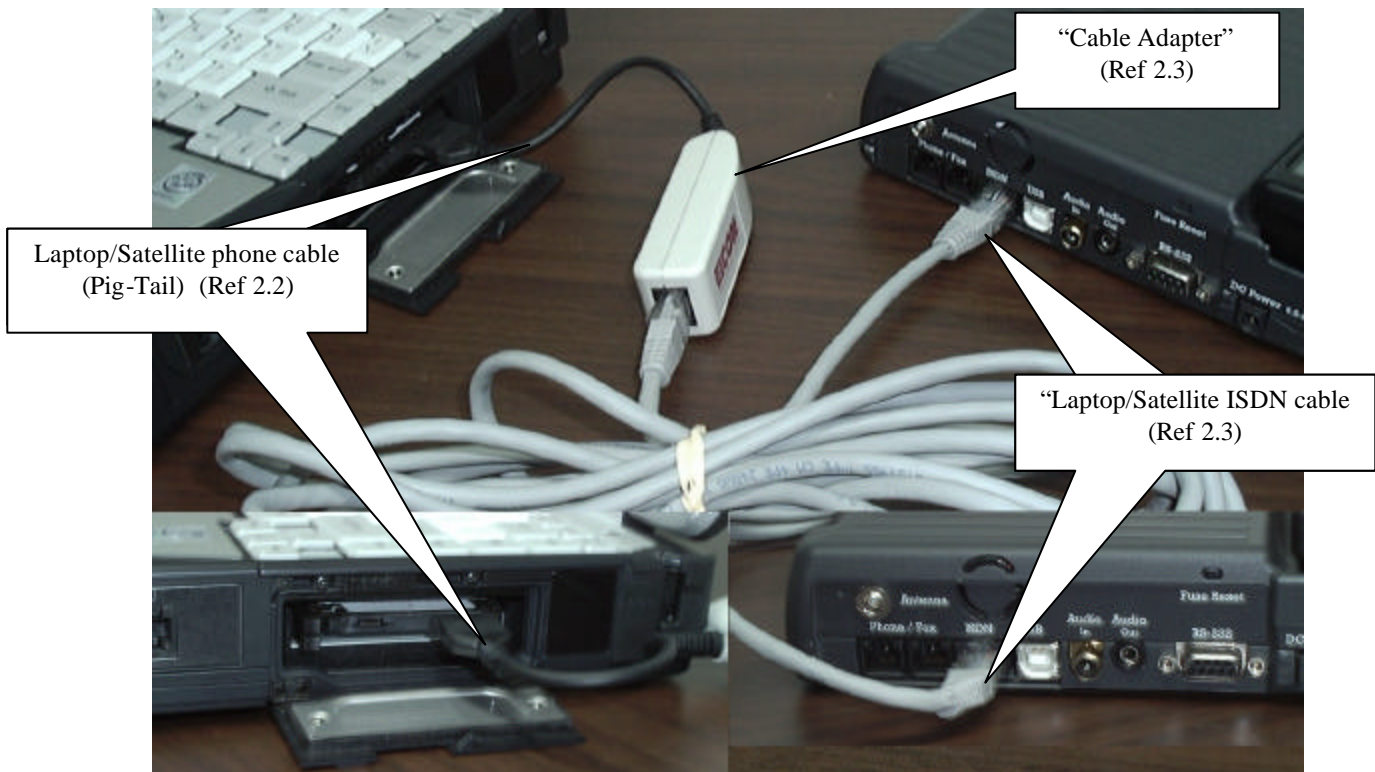


Fig 2.2

**Note: Use extreme care when connecting the adapter to the laptop!**

2.2 Open the small door on the right side of the laptop and connect the laptop/satellite phone cable (black pigtail) shown to the PCMCIA card behind the door (Fig 2.2).

**Note: Use extreme care when connecting the adapter to the laptop!**

2.3 Looking at the back of the satellite phone, connect the other end of the adapter to the ISDN port on the satellite phone (3<sup>rd</sup> port from the left) (Fig 2.2).

2.4 Connect the phone/antenna cable shown to the antenna port on the satellite phone (upper left corner of phone) (Fig 2.3).



Fig 2.3

2.5 Connect the other end of that same cable to the antenna port on the antenna (lower left corner of antenna). (Fig 2.3)

**Note: Antenna cable ends are interchangeable.**

2.6 After plugging appropriate power source to the satellite phone and laptop, apply power to the laptop using the unit power switch (Fig 2.4)



Fig 2.4

**Note: Waiting until execution of processes (booting of applications, etc) is critical for successful connectivity to the satellite and G081.**

2.7 Allow the laptop to boot completely to the “Log On to Windows” screen.

2.8 Turn power “ON” to the satellite phone using the unit power switch (Fig 2.4) and allow the satellite phone to completely initialize.

**Note: All users functions for the satellite phone are accomplished via the menu on the handset keypad and LCD display.**

2.9 Once the laptop has “booted” to the “Log On to Windows” screen, type "inmarsat" as the password and press "Enter".

2.10 When the satellite phone is turned on you will see the “Initializing” message. (Fig 2.5)



Fig 2.5

2.11 Once the phone has initialized, you may see one of 2 sets of messages on the LCD. If you are relatively close to correctly positioning the satellite you will see the following on the LCD display (Fig 2.6). At this point you may press the OK button.

**If you don't see this display, refer to Para. 2.14.**



Fig 2.6



2.12 Next you will see the following (Fig 2.7, Fig 2.8)



Fig 2.7



Fig 2.8

**Note:** The preferred connection should be the satellite closest to you: Stratos (i.e. AORE:Strat, AORW:Strat). If any other satellite contact is in place of "Strat" (i.e. France) please refer to the instructions on page 26.

2.13 To fine-tune the satellite position, watch the number on the LCD display as you adjust the satellite antenna until you achieve a signal strength of 53dBHz or higher and the "Ready" indicator appears (Fig 2.9).

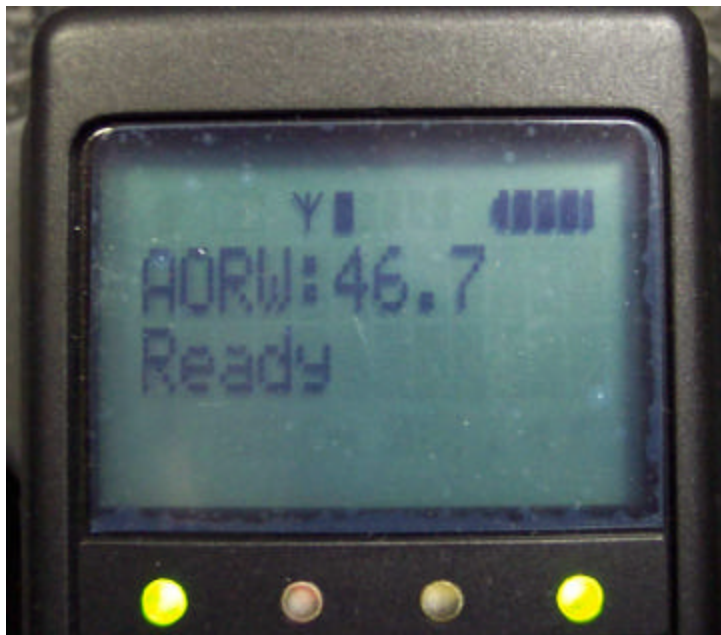


Fig 2.9

**Note:** This number represents your microwave signal strength. The higher the number, the better connection to the satellite.

2.14 The second set of positioning messages on the LCD will be displayed if the aim of the satellite is to far away from correct positioning. Once the phone is "Initialized" (Fig 2.5), you may see the following (Fig 2.10-13) cycle through one after the other. The cycle will continue until one of the satellites is determined to be the best connection and the signal strength reaches 40dBHz or greater.



Fig 2.10-13.

2.15 Once a satellite has locked onto the connection and the signal strength is great enough you will see the following on the phone's LCD (Fig 2.14). Now you may press OK on the phone handset.



Fig 2.14.

**Note:** The preferred connection should be the satellite closest to you: Stratos (i.e. AORE:Strat, AORW:Strat). If any other contact is in place of "Strat" (i.e. France) please refer to the instructions on page 26.

2.16 To fine-tune the satellite position, watch the number on the LCD display as you adjust the satellite antenna until you achieve a signal strength of 53dBHz or higher and the "Ready" indicator appears (Fig 2.15).



Fig 2.15



## Section 3: Satellite Phone Connectivity

3. Using the MRT Kit for Satellite Phone communication requires the assembly of only 2 major components of the kit and associated cables (laptop is not used). Follow this instruction in step-by-step sequence.

3.1 Connect the phone/antenna cable shown to the antenna port on the satellite phone (upper left corner of phone). (Fig 3.1)

3.2 Connect the other end of that same cable to the antenna port on the antenna (Lower left corner of antenna). (Fig 3.1)



Fig. 3.1

3.3 After plugging appropriate power source to the satellite phone, apply power using the unit power switch (Fig 3.2) allow the satellite phone to completely initialize.

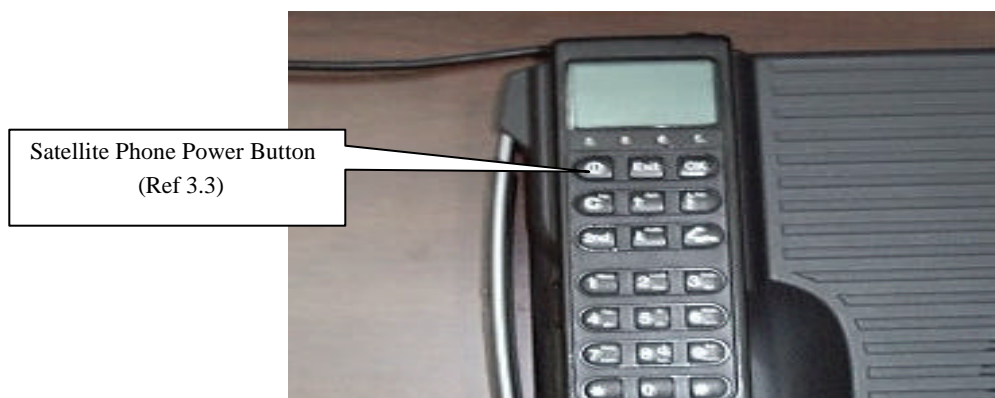


Fig. 3.2



**Note: All “users functions” for the satellite phone are accomplished via the menu on the handset keypad and LC display.**

3.4. Once the phone has initialized, you may see one of 2 sets of messages on the LCD. If you are relatively close to correctly positioning the satellite you will see the following on the LCD display (Fig 3.3). At this point you may press the OK button.

**If you don't see this display, refer to Para. 3.7.**



Fig 3.3

3.5. Next you will see the following (Fig 3.4, Fig 3.5)

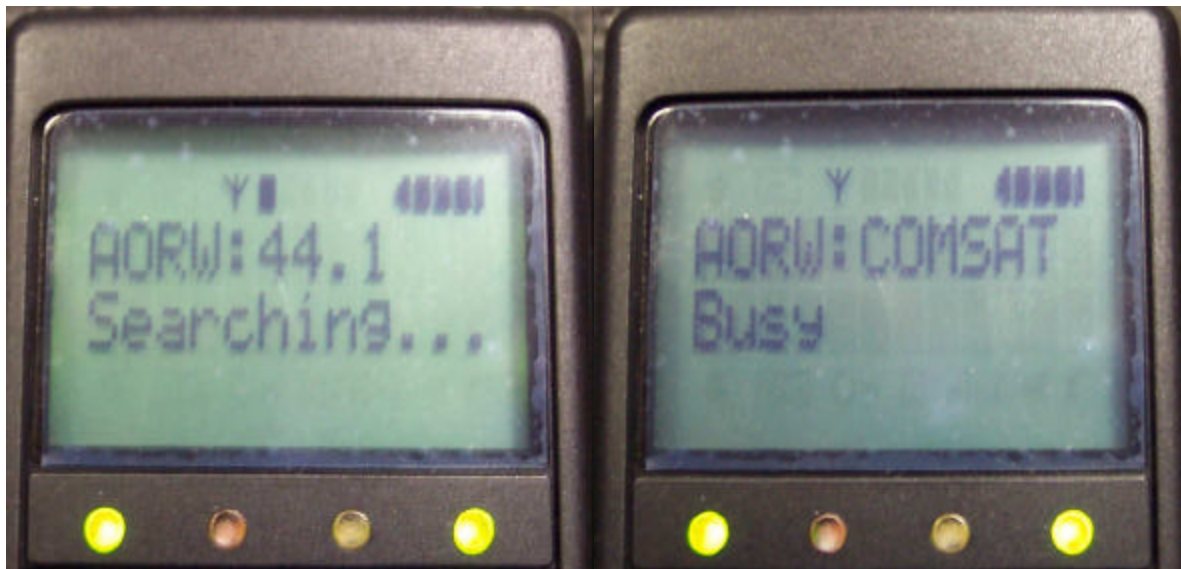


Fig 3.4

Fig 3.5.

**Note: The preferred connection should be the satellite closest to you: Stratos (i.e. AORE:Strat, AORW:Strat). If any other contact is in place of "Strat" (i.e. France) please refer to the instructions on page 26.**

3.6. To fine-tune the satellite position, watch the number on the LCD display as you adjust the satellite antenna until you achieve a signal strength of 53dBHz or higher and the “Ready” indicator appears (Fig 3.6).

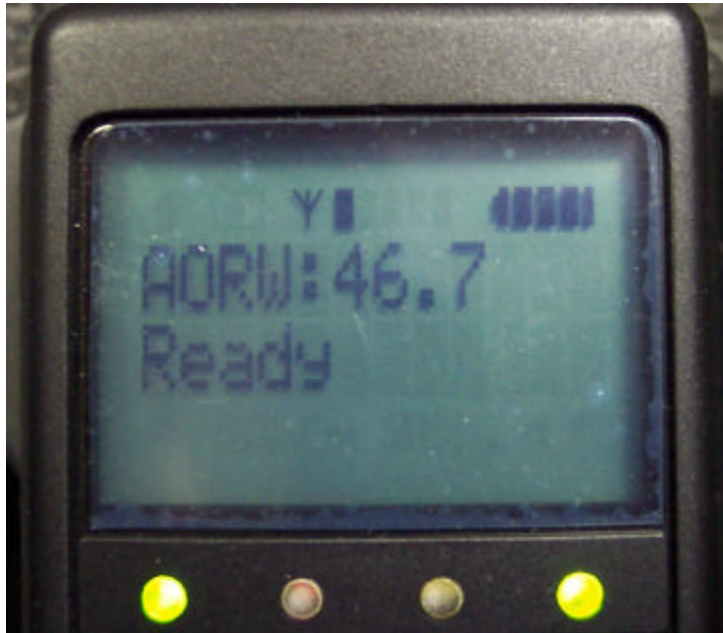


Fig 3.6

**Note:** This number represents your microwave signal strength. The higher the number, the better connection to the satellite.

3.7. The second set of positioning messages on the LCD will be displayed if the aim of the satellite is too far away from correct positioning. Once the phone is "Initialized" (Fig 2.5), you may see the following (Fig 3.7-10) cycle through one after the other. The cycle will continue until one of the satellites is determined to be the best connection and the signal strength reaches 40dBHz or greater.



Fig 3.7-10

3.8. Once a satellite has locked onto the connection and the signal strength is great enough you will see the following on the phone's LCD (Fig 3.11). Now you may press OK on the phone handset.



Fig 3.11

**Note:** The preferred connection should be the satellite closest to you: Stratos (i.e. AORE:Strat, AORW:Strat). If any other contact is in place of "Strat" (i.e. France) please refer to the instructions on page 26.

3.9. To fine-tune the satellite position, watch the number on the LCD display as you adjust the satellite antenna until you achieve a signal strength of 53dBHz or higher and the "Ready" indicator appears (Fig 3.12).



Fig 3.12

**Note:** This number represents your microwave signal strength and the higher the better you're connecting to the satellite.

**Note:** Power-down the Satellite Phone to extend battery life when not in use!



3.10. On the satellite phone handset, press and hold the Phone Icon button (Fig 3.13) down until you the dial tone. You are now ready to make a satellite call.



Fig 3.13

3.11. Enter the phone number in the following format:

**001                      618                      229-2633**  
**(Country Code) - (Area Code) - (7-Digit Extension)**

3.12. Press the OK button after entering the number and your number will be connected. When finished with the call press the Phone Icon button or replace the handset to hang up.

3.13. Power the system down when finished.

## Section 4: G081 and Email Access

### **Note: Setup IAW Section 2**

4.1. On the laptop, click on the icon called “OKC” (Fig 4.1).

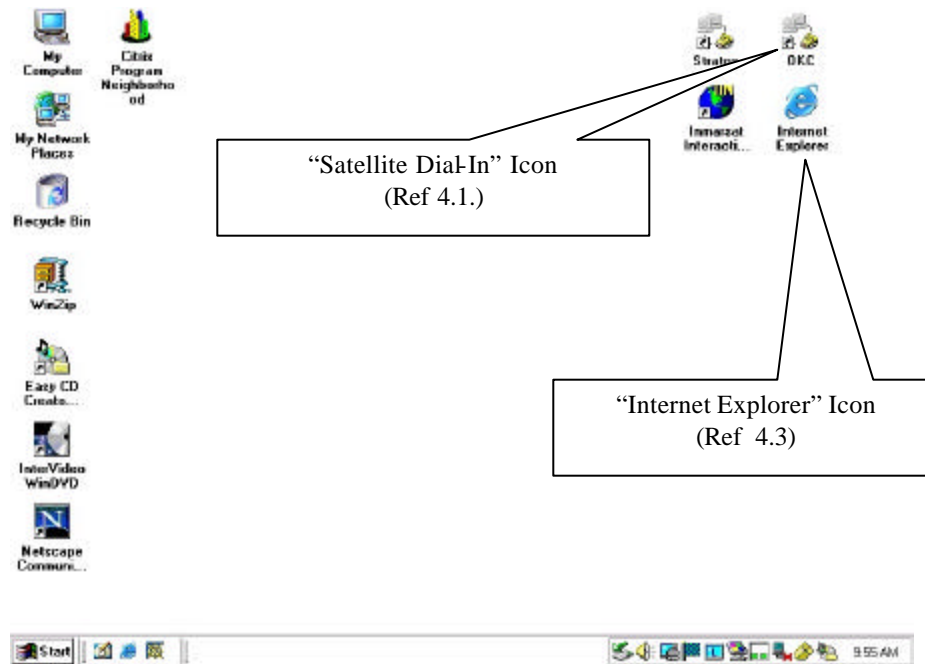


Fig 4.1

4.2. Click on "Dial". This will sequence to the “Connect Inmarsat Satellite” (Fig 4.2) screen to establish a connection between the laptop, satellite and the satellite ground station.

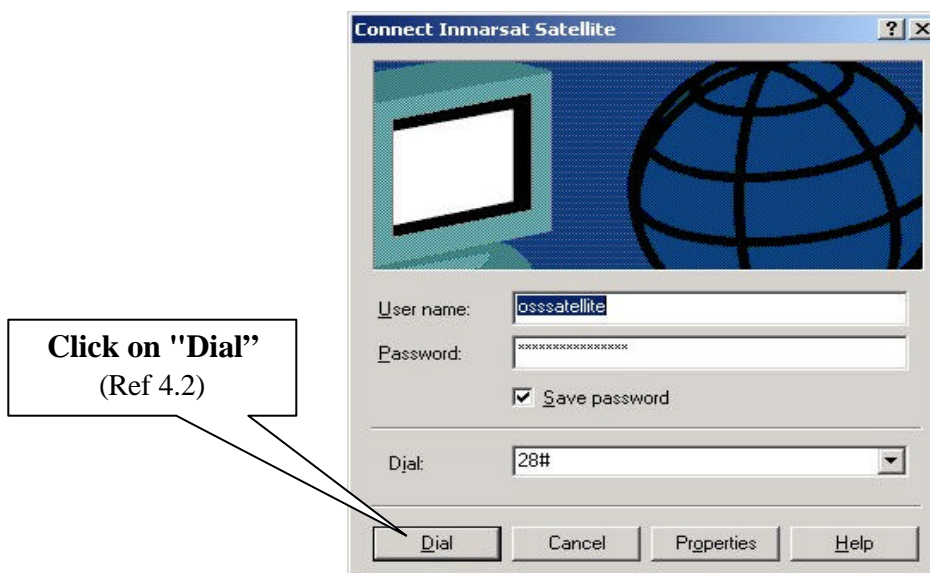


Fig 4.2

4.3. Once the connection between the laptop, satellite and the satellite ground station is established, click on the “Internet Explorer” icon (Fig 4.1). This will open to the “CAMS for Mobility Web Enabled Applications” (Fig 4.3) screen. Log on using your G081 User Id and Password.

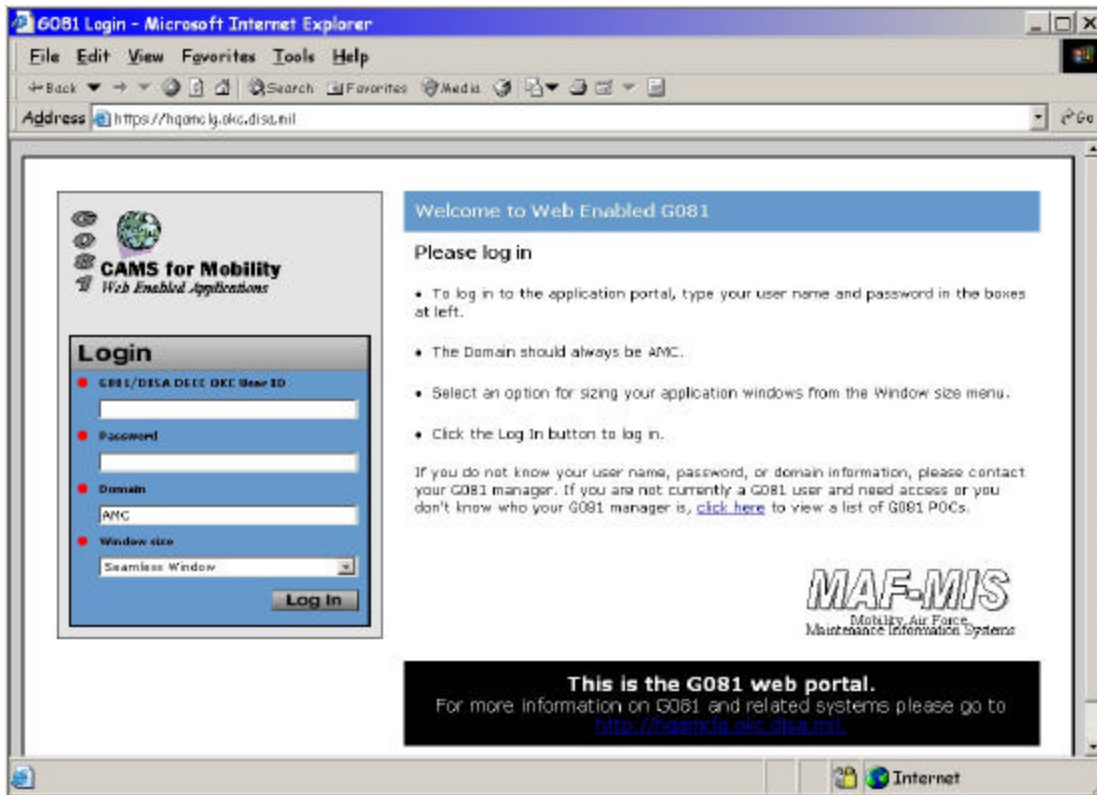


Fig 4.3

You may access your unit email account using the MRT Kit and the Outlook Web Features of Microsoft Exchange

4.4. Each base will have a unique web address to access this feature and may also have slightly different login requirements. You will have to contact your local LOGNET office or computer Workgroup Manager (WGM) and ask for the following information prior to deployment.

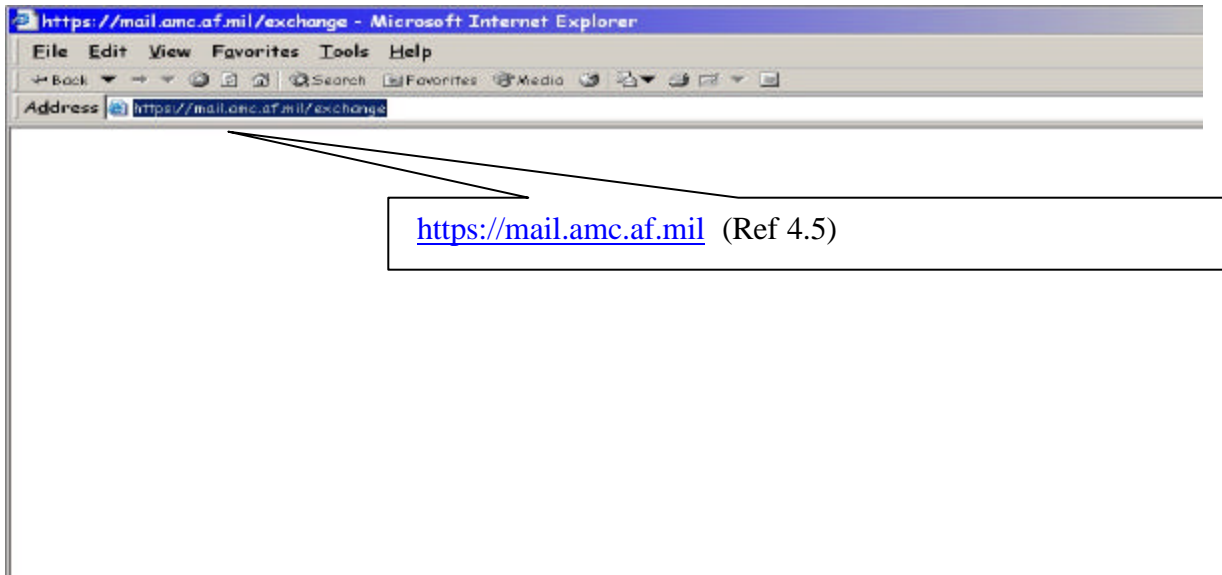


Fig 4.4

4.5. After opening Internet Explorer, type the web address you obtained from your WGM in the address bar (Fig 4.4). Example: https://webmail.amc.af.mil.

**Note: Ramstein personnel can click on "Favorites" then "Ramstein Web Mail" to connect to the mail server. Otherwise, replace "amc" with your home station base name.**

4.6. When prompted enter your network username and password (Fig 4.5) and click OK.

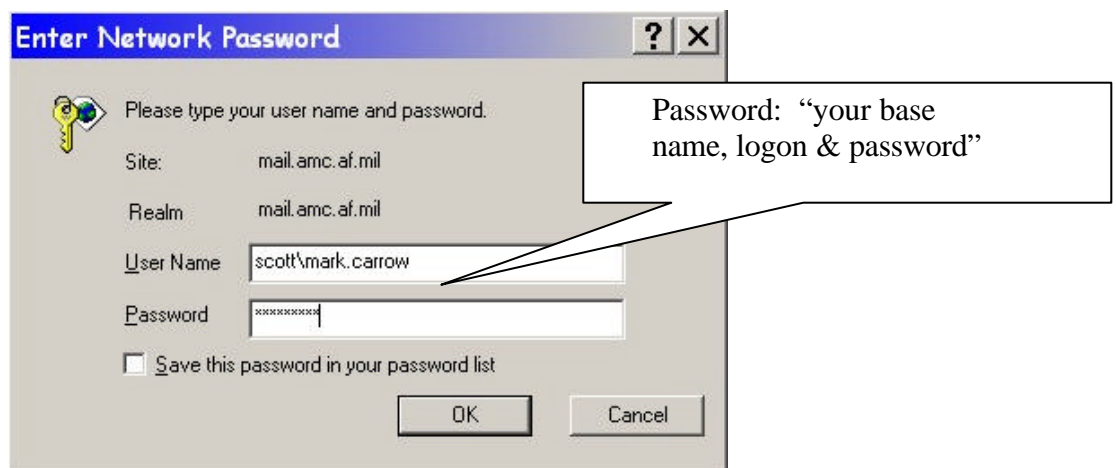


Fig 4.5



4.7. A screen similar to the one in Fig 4.6 will come up. You can now perform most of the same operations you are used to while using MS Outlook.

Note: Response times will be slower.

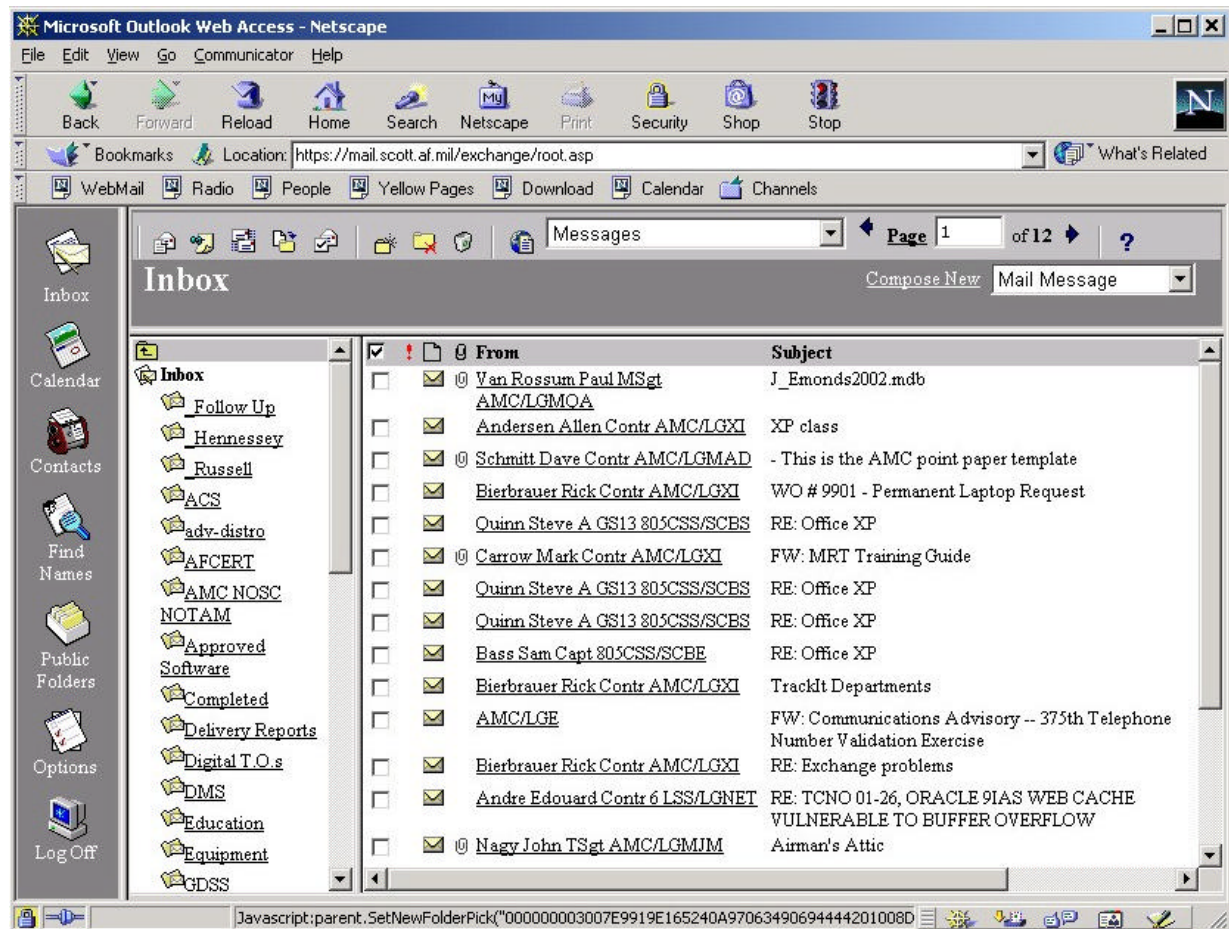


Fig 4.6

## Section 5: Connecting the Camera

5.1 With the laptop running, open the USB port cover on the back of the laptop. Connect the flat end of the USB cable to the laptop. (Fig 5.1)

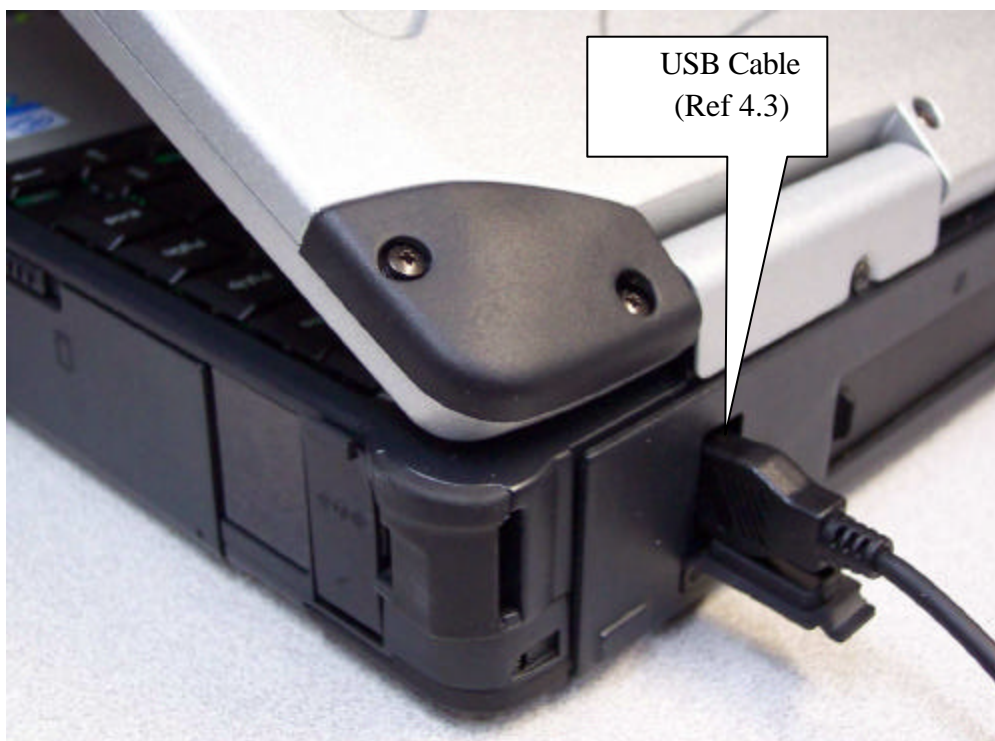


Fig. 5.1

5.2 With the camera turned “Off”, connect the small cable end to the camera. The USB connection is on the side of the camera near the memory card slot. (Fig 5.2, Fig 5.3)

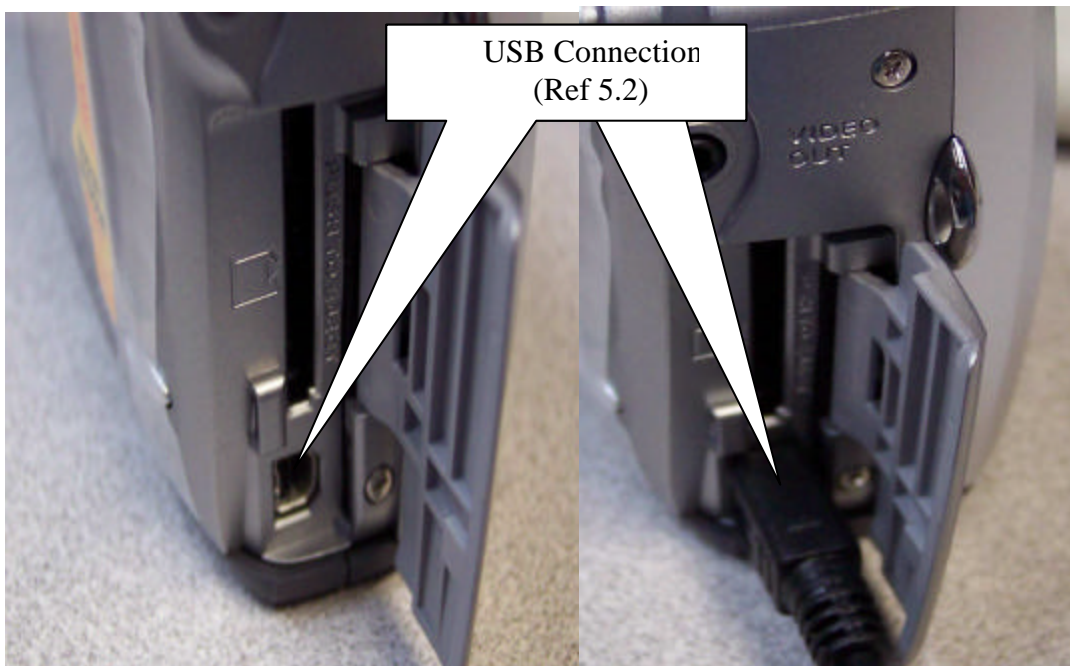


Fig. 5.2

Fig. 5.3

- 5.3 Turn the camera to the “Auto” position (Fig 5.5). The camera software will begin to download the pictures from the camera to the laptop. When complete, the camera will no longer hold a copy of the pictures. The pictures will only be on the laptop under the C:\Photo directory under a sub-directory named of the date the pictures were downloaded. (Fig 5.4)

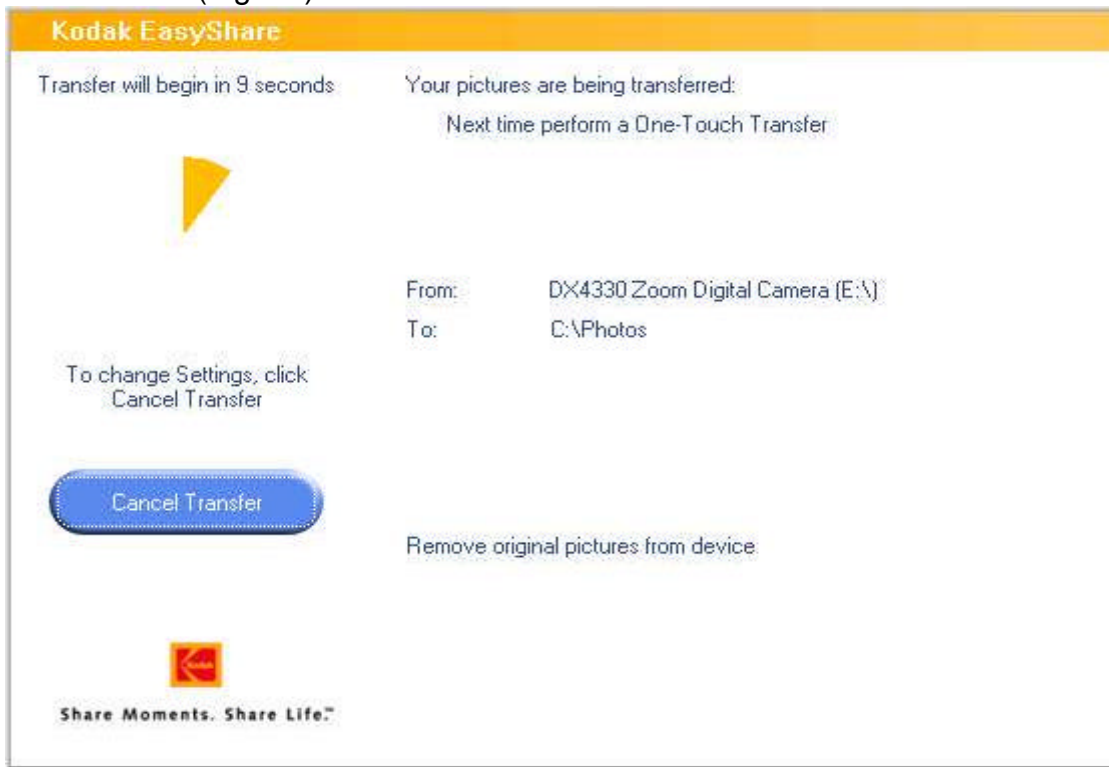


Fig. 5.4

- 5.4 Turn the camera to the “Off” position and disconnect it from the laptop. Be sure to conserve battery power when using the camera. Turn it off when not in use. (Fig 5.5)

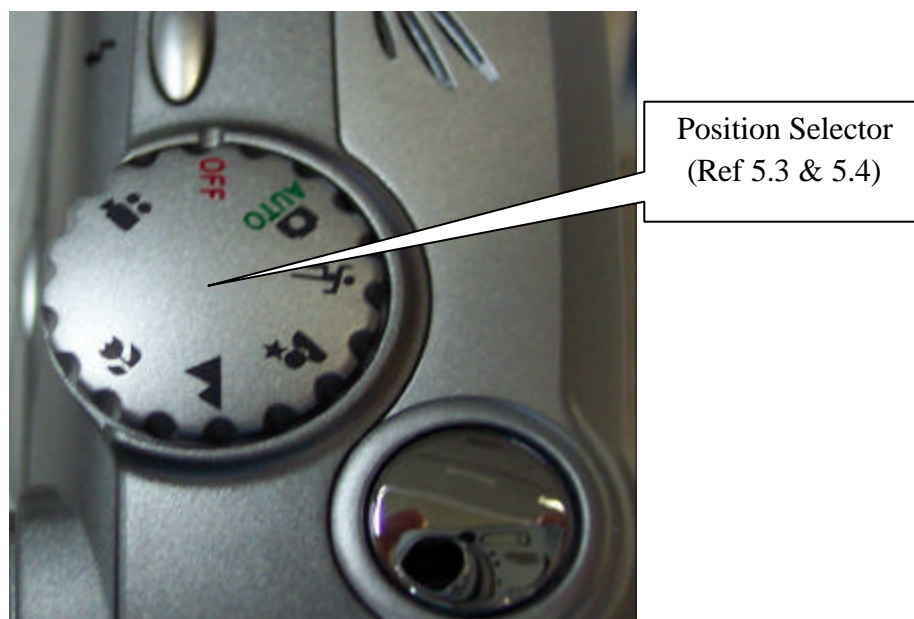
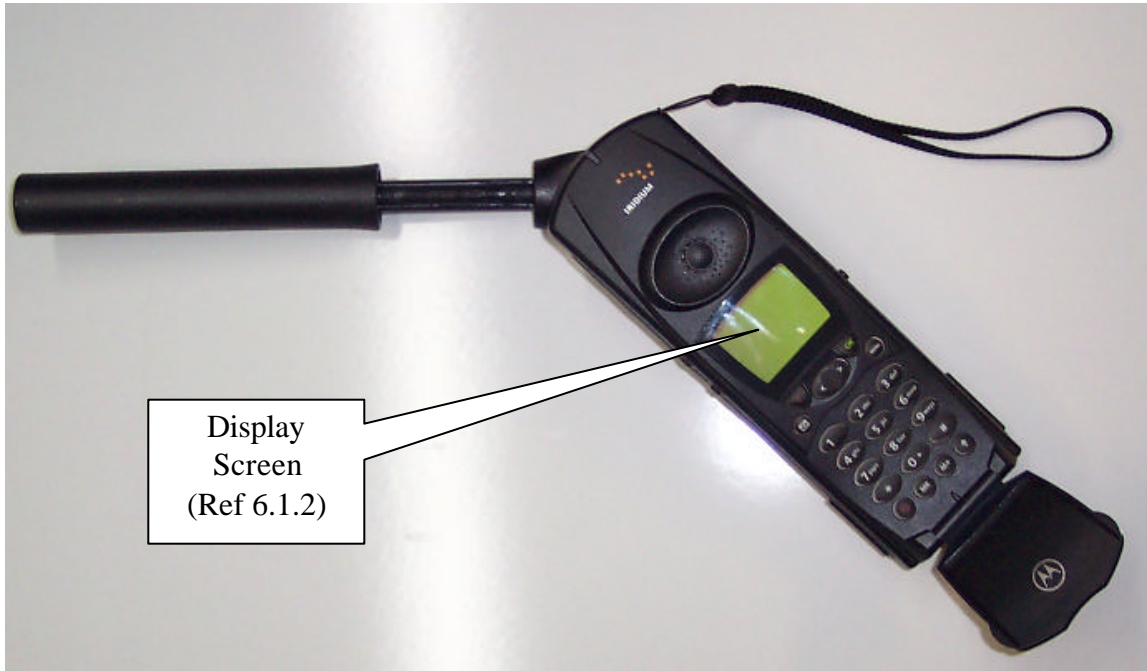


Fig. 5.5

## Section 6: Iridium Satellite Phone

6.1 To place a call, your phone must be powered on and have a SIM card inserted, and be in contact with the satellite. (See "Accessing the Network" on page 159 of the manual).

6.1.1 First rotate antenna until you hear a "click" and then pull it out to its full extension. Open the keypad cover to expose the keypad. (Fig 6.1).



(Fig 6.1)

6.1.2 Enter the number using the digit keys. As soon as you begin entering digits, you will see "call?" on the display screen.

**Note:** When you are in satellite mode, you must enter the phone number in international format: [intl access code or "+"] + [country code] + [phone number]

**Enter the phone number in the following format:**

CONUS Directory Assistance: 00-697-00

ISU-CONUS: 00-697-(US Area Code)-(7 digit #)

ISU-DSN: 00-696-(DSN Area Code)-(7 digit #)

**DSN Area Codes:**

312-CONUS/Canada

313-Caribbean

314-Europe

315-Pacific

317-Alaska

318-Southwest Asia

ISU-ISU: 00-(12-digit ISU #)

DSN-ISU: 717-(last 7 digits of ISU #)

Comm-ISU: 1-808-659-(last 4 digits of ISU #)

ISU-800#: 00-699-1-800-(7-digit #)

ISU-International Long Distance:

00-698-(Country code)-(City code)-(ISU #)

*\*ISU-Individual Subscriber Unit (Iridium phone)*



6.1.3 Press OK. You will see "Calling" followed by the number you dialed.

6.1.4 When the call connects and is answered, "connected" will appear on the display for a few seconds, followed by "End Call?" If the call does not connect, you may see one of the several messages. To troubleshoot refer to the manual page 46 for assistance.

6.1.5 To end the call, perform one of the following tasks:

- **Press O.**
- **Close** the keypad cover.
- **Press C.**

**Note: If you rotate the satellite antenna down and you are in satellite mode, your call will be dropped.**

6.1.6. If the phone becomes "BLOCKED", follow the steps below to return the phone to service.

- **Press \*\*05\***
- **Enter 38882716**
- **Press OK**
- **Enter 1111**
- **Press OK**
- **Enter 1111**
- **Press OK**

On the display it should come up saying "Completed" and "Searching" for the satellite.

## **Instructions to set INMARSAT terminal to use STRATOS Land Earth Station (LES)**

1. Press 2<sup>nd</sup> key + OK or 2<sup>nd</sup> key + 1 (Menu)
2. Press down arrow 5 times until cursor is under "Sat. Setup" – Press OK
3. Cursor should be under "LES" (if not use the arrow keys to find) – Press OK
4. Cursor should be under "Default LES" – Press OK
5. Select satellite closest to you (AORW is default) – Press OK
6. Press down arrow until "013:0 STRAT" appears – Press OK
7. Will return to previous menu ("Default LES")
8. Press down arrow to "Prefer LES" – Press OK
9. Select satellite closest to you (AORW is default) – Press OK
10. Arrow down until "013:0 STR" appears – Press OK
11. Will return to previous menu ("Prefer LES")
12. Press "Exit" until back to normal display

There are two "STRATOS" settings that can be selected under points 6 & 10. STRATOS help desk said to select #013. If unable to utilize, contact Customer Service for help.